Audit Report

OFFICE OF THE INSPECTOR GENERAL

CONTRACTING PRACTICES FOR THE C-17 FLIGHT TEST AIRCRAFT

Report Number 92-074 April 10, 1992

Department of Defense

The following acronyms are used in this report.

DPRO.....Defense Plant Representative Office
EAC.....Estimate at Completion
MOU.....Memorandum of Understanding
OSD.....Office of the Secretary of Defense
T-1.....C-17 Flight Test Aircraft
USD(A).....Under Secretary of Defense for Acquisition

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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April 10, 1992

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL MANAGEMENT AND COMPTROLLER)

SUBJECT: Audit Report on Contracting Practices for the C-17 Flight Test Aircraft (Report No. 92-074)

We are providing this report for your information and use. Comments on a draft of this report were not received from the Under Secretary of Defense for Acquisition by April 1, 1992. DoD Directive 7650.3 requires that all audit recommendations be resolved promptly. Therefore, the Under Secretary of Defense for Acquisition must provide comments on the recommendations by June 10, 1992. The comments must indicate concurrence or nonconcurrence in the finding and each recommendation addressed to you. If you nonconcur, you must state your specific reasons. If appropriate, you may propose alternative methods for accomplishing desired improvements.

We appreciate the courtesies extended to the audit staff. If you have any questions on this audit, please contact Mr. Russell A. Rau, Program Director, at (703) 693-0186 (DSN 223-0186) or Ms. Patricia A. Brannin, Project Manager, at (703) 693-0392 (DSN 223-0392). The report distribution is listed in Appendix E.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosure

cc:
Secretary of the Air Force

Office of the Inspector General

AUDIT REPORT NO. 92-074 April 10, 1992
(Project No. 1AE-5006.01)

CONTRACTING PRACTICES FOR THE C-17 FLIGHT TEST AIRCRAFT

EXECUTIVE SUMMARY

Introduction. In 1981, the Air Force initiated development of the C-17 aircraft to provide additional capability to airlift the full range of Defense cargo. The Air Force planned to buy 120 aircraft at an estimated cost of $35 billion. Douglas Aircraft Company, the prime contractor, had a $6.6 billion single ceiling, fixed-price-incentive contract for development and production of six aircraft. The "T-1 Assembly Complete" contractual milestone took place in December 1990.

Objectives. The C-17 was one of nine programs included in the "Audit of the Effectiveness of the DoD Use of Contractor Cost and Schedule Control System Data on Major Defense Acquisition Programs." The audit objective was to evaluate the implementation and oversight of cost and schedule control systems and the use of data reported by contractors complying with cost and schedule control system criteria. In June 1991, we expanded the scope of the audit to address contracting issues related to the establishment and acceptance of the "T-1 Assembly Complete" contractual event-based milestone for the C-17 flight test aircraft.

Audit Results. The Air Force inappropriately established, priced, and accepted the "T-1 Assembly Complete" contract line item, which was a prerequisite for the award of the third production lot for four aircraft. The Air Force actions impaired effective program oversight to support the decision to proceed with the third production lot. As a result, Defense Acquisition Executive oversight of the C-17 Program was negatively affected and, at the time of acceptance, the Government paid more for "T-1 Assembly Complete" than was justified, thereby increasing Program risk. Based on the acceptance of "T-1 Assembly Complete," Douglas liquidated $1.635 billion in previously made progress payments and was paid an additional $16 million. No withholding was made for work not completed.

Internal Controls. The audit identified a material internal control weakness in that controls were not implemented to ensure that appropriate Office of the Secretary of Defense (OSD) officials were consulted in a timely manner to provide input to Defense Acquisition Executive decisions. The internal control weakness is further discussed in Part I of the report.

Potential Benefits of Audit. Implementation of the recommendations in this report will result in improved controls affecting OSD decisions concerning major Defense acquisition programs (Appendix C).

Summary of Recommendations. We recommended that procedures be established to ensure that OSD staff are informed of contractual events that affect Defense Acquisition Executive decisions and that OSD staff participate, as appropriate, in the acceptance of those events. The nature and extent of this oversight should be coordinated by a single point of contact within the Office of the Under Secretary of Defense for Acquisition.

Management Comments. Comments from the Under Secretary of Defense for Acquisition were not received by April 1, 1992. Comments from the Assistant Secretary of the Air Force (Acquisition) were considered in preparing the final report. Comments on this final report are required by June 10, 1992.

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The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, prepared this report. Copies of the report can be obtained from the Information Officer, Audit Planning and Technical Support Directorate, (703) 614-6303.

PART I - INTRODUCTION

Background

In August 1981, Air Force contract F33657-81-C-2108 (contract 2108) with Douglas Aircraft Company (Douglas) initiated development of the C-17 airlift aircraft. The C-17 was to provide additional capability to airlift the full range of DoD cargo and to provide military capabilities not available in any one cargo aircraft. The C-17 was planned to meet shortfalls in long-range airlift capability by providing an all-weather, air-refuelable ability to operate from small, austere airfields and deliver troops and all types of cargo for intertheater and intratheater operations. Initially, the Air Force planned to buy 210 C-17 aircraft for an estimated $42 billion. However, in April 1990, because of projected reductions in the DoD budget and information from the Major Aircraft Review, the Secretary of Defense reduced the quantity of C-17 aircraft to 120 aircraft at an estimated cost of $35 billion.

In December 1985, the Air Force modified contract 2108 to add full-scale engineering development for the design, development, testing, and fabrication of one C-17 flight test aircraft (T-1) and two ground test articles. On January 13, 1988, and July 28, 1989, the Air Force exercised options for two (Lot I) and four (Lot II) production aircraft, respectively. As of January 27, 1991, the total contract ceiling price was $6.6 billion. Contract 2108 is not typical in that it has a single ceiling for both the development and production efforts. Contract 2108 has experienced significant cost and schedule overruns, partially because of technical problems. As of November 1991, the estimate-at-completion (EAC) for development and production of the first six aircraft, was $7.45 billion. On July 25, 1991, the Under Secretary of Defense for Acquisition (USD[A]) approved the award of another contract for an additional four aircraft (Lot III). The target price was $1.03 billion, and the ceiling price was $1.22 billion. First flight, originally scheduled for October 1985 and subsequently changed several times to June 1991, occurred on September 15, 1991.

Objective

Our overall audit objective was to evaluate the implementation and oversight of contractor cost and schedule control systems and use of data reported by contractors complying with cost and schedule control system criteria. The C-17 Program was one of nine major weapon systems included in the overall audit. On June 19, 1991, we expanded the scope of the audit to address contractual actions related to the establishment and acceptance of "T-1 Assembly Complete."

Scope

We performed this audit of the C-17 Program from June through December 1991. We reviewed records and documentation dated from 1988 to 1991 related to the C-17 Program and discussed the issues related to the "T-1 Assembly Complete" milestone with Government and contractor personnel involved in the acquisition of the C-17. We performed this program audit in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly included such tests of internal controls as were deemed necessary. A list of the activities visited or contacted is in Appendix D.

Internal Controls

We evaluated the implementation of policies and procedures related to the establishment, pricing, and acceptance of the "T-1 Assembly Complete" milestone for the C-17 development contract, especially those policies and procedures outlined in the Federal Acquisition Regulation and DoD Instruction 5000.2, "Defense Acquisition Program Procedures," September 1, 1987.[1/] The audit identified a material internal control weakness as defined by Public Law 97-255, Office of Management and Budget Circular A-123, and DoD Directive 5010.38. OSD staff were not permitted to participate in "T-1 Assembly Complete" acceptance, even though the Office of the USD(A), as Defense Acquisition Executive, had de facto approval authority for the subsequent award of the Lot III production contract. Implementation of the recommendations in this report will correct this weakness. A copy of this report is being provided to the senior officials responsible for internal controls within the OSD and the Air Force.

Prior Audits and Other Reviews

Since 1986, 15 audit reports have been issued that addressed acquisition of the C-17 aircraft: 6 by the Inspector General, DoD; 7 by the General Accounting Office; and 2 by the Air Force Audit Agency. Two of the fifteen reports, discussed below, addressed issues indirectly related to the issue addressed in this report. The remaining 13 audit reports are listed in Appendix A.

1/ DoD Instruction 5000.2, "Defense Acquisition Program Procedures," September 1, 1987, was revised and reissued as DoD Instruction 5000.2, "Defense Acquisition Management Policies and Procedures," February 23, 1991.

Inspector General, DoD, Report No. 91-007, "Audit Report on Selected Acquisition Actions on the C-17 Aircraft," November 2, 1990, was the result of a Hotline allegation that the Air Force inappropriately exercised a contract option in July 1989 to buy four C-17 aircraft and that the development status of the C-17 software was worsening. The report recommended that the Program Manager specify the minimum assembly required to consider the T-1 aircraft assembled ("T-1 Assembly Complete") to meet the contractual milestone event for award of Lot III. The Office of the Assistant Inspector General for Auditing believed that the Air Force actions to define "T-1 Assembly Complete" met the intent of the recommendation. Our current audit addresses issues related to the "T-1 Assembly Complete." We concluded that while actions taken to define "T-1 Assembly Complete" as a prerequisite for award of the Lot III contract were adequate, the Memorandum of Understanding (MOU) defining "T-1 Assembly Complete" was not sufficient for establishing a contract line item.

On February 13, 1992, we issued Report No. 92-046, "Audit of Contractor Accounting Practice Changes for C-17 Engineering Costs," which reported that the Government permitted Douglas to inappropriately redefine the point of transition of sustaining engineering costs from development to production. As a result, at least $172 million of development costs were improperly charged as production costs, and the contractor received additional financing of development costs in FY 1991. We also reported that actions taken by the Government to implement the accounting practice change to redefine sustaining engineering costs were part of a series of actions during the summer and fall of 1990 that provided progress payments to McDonnell Douglas Corporation earlier than they would otherwise have been received. Based on our audit of "T-1 Assembly Complete," we believe that the establishment of "T-1 Assembly Complete" as a billable contract line item during this same time frame, the "rush" to accept the "T-1 Assembly Complete," and subsequent award Lot III is part of the same series of actions.

PART II - FINDING AND RECOMMENDATIONS

"T-1 ASSEMBLY COMPLETE"

The Air Force inappropriately established, priced, and accepted the "T-1 Assembly Complete" contract line item, which was a prerequisite for the Air Force's award of four Lot III aircraft. Award of the Lot III contract required USD(A) de facto approval; however, OSD personnel were not involved in the "T-1 Assembly Complete" acceptance process. The Air Force based the "T-1 Assembly Complete" billing price on a projection of expenditures of the total billing price for full delivery of the T-1 aircraft, rather than on the percentage of work completed at "T-1 Assembly Complete." Also, a withhold from the billing price paid was not established at acceptance of "T-1 Assembly Complete," for incomplete work. As a result, the Defense Acquisition Executive oversight was unduly limited, risk was unnecessarily incurred, and the contractor was inappropriately paid more for "T-1 Assembly Complete" at the time of acceptance than was warranted based on actual work completed.

DISCUSSION OF DETAILS

Background

In November 1988, the Air Force and Douglas modified C-17 development contract 2108 to award Lot III for four aircraft contingent on completion of "T-1 Assembly Complete." The modification specified that "T-1 Assembly Complete" would:

> . . . be accomplished when T-1 moves out of assembly . . . and the PCO [procurement contracting officer] determines that any remaining assembly work can be accomplished without significant disruption to planned ground and flight test efforts. . . .

At the time of the November 1988 modification, "T-1 Assembly Complete" was scheduled for January 1990, and first flight was scheduled for August 1990. On June 12, 1990, 6 months after the originally scheduled "T-1 Assembly Complete" contractual event, the Air Force and Douglas made a MOU to "clarify" what had to be done for the contractor to meet the "T-1 Assembly Complete" event. The MOU did not address how well the aircraft was to perform but rather identified manufacturing steps that had to be completed and functionality of components demonstrated.

In September 1990, the Air Force and Douglas modified the contract to make "T-1 Assembly Complete" a contract line item. The establishment of "T-1 Assembly Complete" as a separate contract line item was part of a package of consideration exchanged between the Air Force and the contractor because of substantial schedule slips in meeting contract requirements. According to Program Office officials, Douglas did not provide a reasonable or substantial consideration proposal to the Air Force for the schedule delays. Therefore, the Program Office developed a package, which it negotiated with Douglas, that included $56 million to $84 million in work that Douglas would provide without increasing the contract price. Although these estimates were developed by the Program Office, we could not substantiate that in fact the net value of the consideration exchanged resulted in these monetary benefits to the Government. Also, we consider Douglas' refusal to estimate the value of the consideration offered during negotiation for its schedule slippage, and the Air Force's subsequent failure to demand this information before concluding negotiations, to be a material deficiency in the negotiation process. Adding the contract line item reduced Douglas' financial risk. Douglas estimated that the payment for "T-1 Assembly Complete" saved it $2.5 million in interest expense from December 1990 to June 1991.

By September 1990, "T-1 Assembly Complete" was forecast to slip 1 year, from January to December 1990. On December 21, 1990, Douglas certified to the Air Force that the T-1 assembly was complete in accordance with the June 1990 MOU. On December 22, 1990, the Air Force accepted the certification. Appendix B lists a chronology of events leading to the establishment and acceptance of the "T-1 Assembly Complete" contract event and subsequent award of the Lot III contract.

On February 13 and March 4, 1991, we presented our concerns to the USD(A) and the Director, Tactical Warfare Programs, Office of the Director, Defense Research and Engineering, respectively, for consideration in decisions concerning award of the Lot III production contract for the C-17 aircraft. In the briefings, we suggested that the Lot III production award be delayed until after the planned June 1991 first flight and that long-lead production funding be continued to maintain production schedules. We also believed that the Conventional Systems Committee should review the Program after T-1 acceptance for first flight, but no later than August 31, 1991, focusing on the Lot III contract award and production schedule. By delaying the award, the Government would lessen the risk associated with the growing concurrency in the C-17 Program.

On March 25, 1991, the USD(A) issued a memorandum that addressed our concerns. The USD(A) directed that only termination liabilities for Lots III and IV be obligated through June 1991, the then-scheduled first flight. The USD(A) also stated that funds would not be obligated until consideration for specification changes to Lots I and II were obtained; the plan for Lot IV was defined, including criteria for full funding; and the sources of funds to budget Lot III at the "most likely" level were identified.

"T-1 Assembly Complete"

After the February and March 1991 briefings, we continued our review and assessment of contracting practices for the C-17 aircraft flight test article. We found that the billing price did not consider the actual amount of work completed, payment withholdings were not made for incomplete assembly work, and OSD oversight was unduly limited. In addition, the establishment and acceptance of the contract line item transferred significant financial risk from the contractor to the Government.

Billing price. In September 1990, the Air Force made "T-1 Assembly Complete" a billable contract line item valued at $1,651 million, which was about 93 percent of the total billing price for Government acceptance of the T-1 aircraft at first flight. The September 1990 modification divided full delivery of the T-1 aircraft, valued at $1,776 million, into two parts: "T-1 Assembly Complete" demonstration report and full delivery of T-1 flight aircraft, as shown in the table below. The contractor estimated the value of the "T-1 Assembly Complete" line item by projecting (regression analysis) the expenditures over time for full delivery of the T-1 vehicle, which was then scheduled for June 1991. The scheduled December 1990 "T-1 Assembly Complete" event coincided with 93 percent of the projected expenditures.

Contract Line Items	Billing Price (millions)	Percentage
"T-1 Assembly Complete"	$1,651	93
Full Delivery of T-1 Aircraft	125	7
Previous Single Contract Line Item	$1,776	100

The Air Force accepted Douglas' estimates without verifying the data or analyzing the estimated percent complete in relation to full delivery of the T-1 flight vehicle that would meet the acceptance requirement, that is, without significant disruption to planned ground and flight test. Also, no consideration

appeared to have been given to a significant deficiency in Douglas' scheduling system. In June 1990, the Defense Plant Representative Office (DPRO) issued a Critical Deficiency Report to Douglas, stating that Douglas did not have a reliable scheduling system to accurately forecast and facilitate the delivery of products and services. Because the "T-1 Assembly Complete" billing price was based on the billing price for the full delivery of the T-1 aircraft and the June 1991 delivery date, cost overruns and schedule delays for the T-1 aircraft could have had a significant affect on the established billing price. Also, by basing the acceptance criteria on manufacturing tasks rather than on a specific measure of percentage complete toward first flight (full T-1 delivery), the Air Force accepted risk that the contractor's scheduling system could accurately predict when first flight would occur and that the relationship between the schedule and the billing price was reasonable.

Acceptance of "T-1 Assembly Complete." When the Air Force accepted "T-1 Assembly Complete," it did not determine the amount of expenditures actually incurred relative to the estimated cost for full delivery of the T-1 aircraft. Such a determination would have been reasonable because the projected expenditures had been the basis for the billing price. Also, the certification of "T-1 Assembly Complete" did not include an assessment of the percentage of completion of the T-1 aircraft relative to full acceptance and first flight of the T-1 aircraft. Based on the contractor's internal manufacturing tracking system, at "T-1 Assembly Complete" the T-1 aircraft assembly was only about 81 percent complete relative to first flight. Also, the Program Office estimated that the T-1 aircraft was only about 95 percent complete relative to the criteria for acceptance in the MOU. The Air Force had determined that some work originally contemplated in the MOU, such as ground refueling and crew oxygen systems, did not need to be completed in order to meet "T-1 Assembly Complete." Also, a significant amount of out-of-sequence work remained to complete the T-1 aircraft. The Air Force did not adequately assess the schedule impact of the out-of-sequence work on ground and ramp test operations. The MOU required that no significant impact on ground and ramp test operations occur.

We believe that, when Douglas certified "T-1 Assembly Complete," the Air Force should have analyzed the expenditures actually incurred compared to the estimated expenditures for full delivery of the aircraft. Such an analysis could have provided information concerning the potential for overpayment relative to full delivery of the aircraft. Although a one-to-one relationship between the percentage spent and the percentage complete may not exist, it appears that sufficient work had not been done to warrant paying 93 percent of the value of the fully delivered T-1 aircraft when Douglas' records indicated that

aircraft assembly was only about 81 percent complete. Also, when the Air Force accepted "T-1 Assembly Complete," Douglas still had not responded to the June 1990 Critical Deficiency Report, which indicated that Douglas' ability to accurately forecast deliveries was still questionable.

The September 1990 modification making "T-1 Assembly Complete" a contract line item required that Douglas provide a Production Analysis Report 30 days after "T-1 Assembly Complete." The Report was to provide assembly standard hours used, actual hours used, and remaining hours to complete. Although acceptance of "T-1 Assembly Complete" was to be based on the MOU, payment for "T-1 Assembly Complete" was contingent upon receipt of this Report. On December 21, 1990, the same date that Douglas certified "T-1 Assembly Complete," Douglas submitted the Report. On December 24, 1990, the C-17 contracting officer, in approving payment for "T-1 Assembly Complete," stated that the Program Office reviewed the one-time submittal of the Production Analysis Report and found that it met the contract requirements. This review would have been done between the December 21 submittal by Douglas and the December 24 approval for payment by the contracting officer. However, the Report reflected November 1990 data, rather than December 1990 data, when "T-1 Assembly Complete" was certified. Therefore, information that could have been used to determine percent complete relative to full delivery of the T-1 aircraft when the contract line item was accepted was not available. Also, the contractor did not provide the required data item, specifically the information in the Report, at the time of "T-1 Assembly Complete." If the Government had required that it receive the Report based on information at the time of "T-1 Assembly Complete," as required, the payment for the "T-1 Assembly Complete" contract line item would have been made later than it was.

Based on the acceptance of "T-1 Assembly Complete," Douglas liquidated[2/] $1.635 billion in progress payments previously provided and was paid an additional $16 million, to equal the $1.651 billion billing price for the contract line item. No withholding was made for the work not completed. The Air Force should have withheld liquidations of a portion of the progress payment for the "T-1 Assembly Complete" contract line item

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[2/]Progress payments are made to a contractor before goods or services are received. Therefore, the contractor incurs a debt to the Government in the amount of the progress payment. This debt is liquidated as the goods and services are received. The value of each good and service is predetermined in the contract with a price for the contract line item.

because of the work that had not been accomplished in accordance with the MOU.

On June 27, 1991, Douglas notified the Program Office that full delivery of the T-1 aircraft and first flight would not occur in June 1991 as scheduled; however, Douglas did not provide revised dates for the delivery and first flight. Not until July 26, 1991, 1 day after the USD(A) approval to award the Lot III contract, did the contracting officer at the Program Office direct Douglas to provide a recovery schedule for contractually affected milestones, such as first flight, as well as consideration to the Government for the delay. Although it was not a formal "cure notice," the contracting officer's letter addressed protecting the Government's rights under the contract default clause.

Making "T-1 Assembly Complete" a contract line item was part of a contract modification that was intended to provide the Government with consideration for significant schedule slips by the contractor. Instead, the contract modification increased Government risk by allocating 93 percent of the total billing price for acceptance of the T-1 aircraft when the remaining amount of work was not considered. The 93-percent billing price had been based on a time-oriented expenditure analysis rather than an analysis of work performed. By accepting "T-1 Assembly Complete" and not establishing withholds of the progress payments for work not completed, we believe the Government was placed at a significant disadvantage, from a contract perspective, to enforce compliance with the contract for work already accepted. We believe that the Air Force did not adequately consider the increased risk to the program when it established "T-1 Assembly Complete" as a separate line item.

Office of the Secretary of Defense oversight. The Office of the USD(A) was not involved in the acceptance of "T-1 Assembly Complete," even though a decision by the USD(A), as the Defense Acquisition Executive, was required for the Lot III contract award. The "T-1 Assembly Complete" was the event that would allow the award of Lot III for four more aircraft. According to the modified development contract, the Lot III contract was to be awarded within 30 days of Government acceptance of "T-1 Assembly Complete." Although the Defense Acquisition Executive had de facto approval for Lot III award, personnel from OSD were not permitted access to the T-1 aircraft. For example, in a December 10, 1990, memorandum, the Director, Defense Systems and Programs Office, indicated that the Air Force C-17 Program Director had repeatedly denied access to members of his staff, thus preventing his office from providing an assessment of "T-1 Assembly Complete."

In a December 24, 1990, memorandum, the C-17 Program Director notified the Assistant Secretary of the Air Force (Acquisition) and the C-17 Program Executive Officer that Douglas had achieved "T-1 Assembly Complete" and had satisfied conditions for award of the Lot III contract. The Program Director was prepared to discuss "T-1 Assembly Complete" with the Assistant Secretary and the Director, Tactical Warfare Programs, after January 1, 1991, if the December memorandum was not sufficient notification to the Conventional Systems Committee, an element of the Defense Acquisition Board.

We believe that the Committee should have been notified before the contract line item was accepted. In essence, the Air Force's acceptance of this event required almost immediate approval by the USD(A) of the Air Force's recommendation to proceed with the production contract. Thus, the Air Force placed the USD(A) in the unacceptable position of either accepting the Air Force determination of "T-1 Assembly Complete" and approving Lot III contract award or potentially giving the contractor a basis for claims for delaying the award. The USD(A) could not complete necessary oversight activity associated with the Lot III award, but he did delay award of the contract until July 1991. As part of negotiations for the Lot III contract and the schedule restructure for the development, Lot I, and Lot II contract, Douglas agreed not to submit claims or other requests for equitable adjustment for the Government's delay of the award of Lot III after completion of "T-1 Assembly Complete." The negotiation memorandum did not establish a price for this and other consideration exchanged by the Government and contractor.

When "T-1 Assembly Complete" was accepted on December 22, 1990, negotiations for Lot III had not concluded, and it was unlikely that the Lot III contract could have been awarded within 30 days of acceptance of "T-1 Assembly Complete." Delays in the negotiations were attributed to changes in budgets and in the number of aircraft to be acquired. By establishing the contractual requirement to award the Lot III contract within 30 days, conditions were put into the contract that could easily not be met, given the "normal" perturbations in the budget process. Thus, the modification provided the contractor with the potential basis for claims against the Government because the Government could not comply with the contract requirement. Also, expediting the review and approval procedures for acceptance of the contract line item and not addressing the schedule for award at acceptance negatively affected the Government's interests. Subsequent events, including the extensive review conducted by the Office of the USD(A) in support of the Lot III production decision, illustrate the importance of up-front involvement of the USD(A) in acquisition decisions.

The manner in which "T-1 Assembly Complete" was established as a contract line item negatively affected effective program oversight. First, acceptance of the contract line item increased the amount of accepted work on the aircraft development by $1.651 billion and decreased the amount of unliquidated progress payments by $1.635 billion. As a result, we believe the Government's liability in the unlikely event of a termination for default was significantly increased. Second, acceptance of a contract line item is generally conclusive except in specific circumstances; therefore, the latitude for senior decisionmakers to question the acceptance was significantly diminished. Finally, "T-1 Assembly Complete" was not as well defined as formal acceptance for full delivery of the T-1 flight test aircraft. Although the MOU attempted to clarify the work to be done to meet the "T-1 Assembly Complete" event, what had to be done to meet the event was still subject to interpretation.

A representative of the Office of the USD(A) should have been involved in the acceptance of "T-1 Assembly Complete." The revised DoD Instruction 5000.2, "Defense Acquisition Management Policies and Procedures," February 23, 1991, emphasizes the importance of event-based milestones by stating that event-driven acquisition strategies and contracting are to avoid premature commitment to programs and forcing program decisions solely because of potential loss of priced production options that may expire on a certain date. The decision to award Lot III brought the total production aircraft on contract to 10 without any aircraft having flown. Also, the criteria for awarding the third production lot did not include how well the aircraft would perform. When events, such as "T-1 Assembly Complete," are established, the degree and type of participation of staff from the decision authority should be established and coordinated. Without appropriately timed Office of the USD(A) input and oversight, the Military Departments can, in essence, leverage a production decision by accepting prerequisite contractual events.

Conclusion

The Program Office did not take appropriate actions to protect the Government's interest in establishing, pricing, and approving "T-1 Assembly Complete." We believe that the contract modifications relating to "T-1 Assembly Complete" and subsequent acceptance of "T-1 Assembly Complete" did not adequately address how well the contractor was progressing toward first flight. Also, the modifications and acceptance put the Government in the untenable position of not reasonably being able to meet a contractual requirement, specifically awarding the Lot III contract within 30 days of "T-1 Assembly Complete" acceptance given the need for a review by the USD(A). Also, delays in

notifying the contractor to provide consideration for delayed delivery of the T-1 aircraft and a revised schedule for the delivery and first flight was not sound contracting and management practice.

RECOMMENDATIONS FOR CORRECTIVE ACTION

We recommend that the Under Secretary of Defense for Acquisition:

1. Establish and implement policy to require that Office of the Secretary of Defense staff be apprised of the establishment of, and changes in, contractual event schedules resulting in Defense Acquisition Executive decisions and that the staff participate, as appropriate, in the acceptance of the event milestone for those events resulting in a program decision by the Defense Acquisition Executive.

2. Provide a point of contact within the Office of the Under Secretary of Defense for Acquisition to coordinate the type and degree of participation by the Office of the Under Secretary of Defense for Acquisition or his designated staff at contractual events.

MANAGEMENTS COMMENTS

Comments were not received from the Under Secretary of Defense for Acquisition by April 1, 1992. The Assistant Secretary of the Air Force (Acquisition) provided clarifying information and comments on the finding (Part IV). Because recommendations were not addressed to the Assistant Secretary of the Air Force (Acquisition), comments on the recommendations were not required. However, the Assistant Secretary did not agree that the degree of OUSD(A) participation should be determined when the event based milestones are established. Instead, they should be established in the acquisition strategy and communicated at each milestone review. Also, the Assistant Secretary nonconcurred with our statements that the award of Lot III required USD(A) approval and withholds from payment should have been made at the time of "T-1 Assembly Complete."

AUDIT RESPONSE TO MANAGEMENT COMMENTS

We have changed the report to incorporate clarifying information provided by the Assistant Secretary of the Air Force (Acquisition). Additional responses to the Assistant Secretary's comments are in Part IV.

We agree that the degree of OUSD(A), involvement in the program should be established in the acquisition strategy and clearly communicated at the milestone reviews. Further, when significant

changes to the strategy are made, such as establishing a milestone or making a milestone a contract line item with a significant billing price, the degree of USD(A), or his staff's, involvement should be reassessed and clearly communicated.

Although the USD(A) had given contingent approval in the January 1989 Acquisition Decision Memorandum, he had the opportunity to reverse the decision based on the results of the "T-1 Assembly Complete" briefing to the Conventional Systems Committee. The C-17 Program Director provided notification, through the Assistant Secretary of the Air Force (Acquisition), to the Conventional Systems Committee that the "T-1 Assembly Complete" event-based milestone had been met. The USD(A) was left with little choice regarding the award of Lot III, based on purportedly successful attainment of "T-1 Assembly Complete." We modified our report to reflect the nature of the USD(A) approval. Also, when the January 1989 Acquisition Decision Memorandum was made, the "T-1 Assembly Complete" milestone was not a contract line item. As previously discussed in our report, acceptance of a contract line item is generally conclusive. There is no FAR or Defense FAR Supplement requirement either to accept a contract line item the day the line item is presented or to conduct acceptance activities outside the normal business day. We firmly believe that the Service Acquisition Executive and the Conventional Systems Committee should have been informed of the status of "T-1 Assembly Complete" before "conclusive" contractual acceptance of the line item. It is also alarming that the Program Officials could not wait 1 business day to permit such notification. We also find disturbing the Assistant Secretary's comments that it became impossible to award Lot III within 30 days after acceptance of "T-1 Assembly Complete" based in part on the zero buy for FY 1991. Congress appropriated $460 million for two aircraft in FY 1991. Because the Air Force could not contract for two aircraft at that funding level, no aircraft were procured. More important, however, is that the Air Force knew before "T-1 Assembly Complete" acceptance that the 30-day requirement could not be met, and failed to inform senior management of this fact while accepting this $1,651 million contract line item. In essence, the acceptance decision bound the Government to not comply with a significant aspect of the 2108 contract, that is award of the Lot III contract, with no review of the situation above the Program Director before acceptance. As previously stated, this acceptance gave the contractor leverage in the Lot III negotiations to obtain consideration from the Government. Subsequently, the contractor failed to deliver the T-1 aircraft on schedule or before the Lot III award. Once the contract line item was accepted, the contractor was allowed to liquidate $1.635 billion in progress payments. Thus, the contractor's liability for unliquidated progress payments was significantly reduced. The contractor was

"paid" 93 percent of the price for T-1 aircraft, even though the aircraft was not fully assembled and was contractually 6 months away from first flight. Withholds of the contract payment were warranted because the aircraft was not completed in accordance with the June 1990 MOU.

Comments to the final report should be provided by June 10, 1992.

PART III - ADDITIONAL INFORMATION

Appendix A - Prior Audit Reports on the C-17
Appendix B - Chronology of Events Related to "T-1 Assembly Complete"
Appendix C - Summary of Potential Benefits Resulting from Audit
Appendix D - Activities Visited or Contacted
Appendix E - Report Distribution

APPENDIX A: PRIOR AUDIT REPORTS ON THE C-17

Since 1986, the Inspector General, DoD, the General Accounting Office, and the Air Force Audit Agency have issued the following 13 reports about or including the C-17. These reports did not discuss the specific issues addressed in this report.

Office of the Inspector General, DoD

Report No. 89-067, "Final Report on the Review of the C-17 Cargo Aircraft Program as a Part of the Audit of the Effectiveness of the Defense Acquisition Board Process," April 6, 1989.

Report No. 89-059, "Final Report on the Acquisition of the C-17A Aircraft," March 20, 1989.

Report No. 88-095, "Contractor Make-or-Buy Programs," March 3, 1988. The C-17 was one of 20 systems for which make-or-buy programs were reviewed.

Report No. 87-166, "Effectiveness of the Defense Systems Acquisition Review Council (DSARC) Process - Phase III," June 3, 1987. The C-17A was one of several systems included in the audit.

General Accounting Office

Report No. GAO/NSIAD-91-17BR (OSD Case No. 8551), "Air Force Budget: Potential Reductions to Aircraft Procurement Budgets," November 30, 1990. The C-17 was one of several programs included in the review.

Report No. GAO/NSIAD-90-128 (OSD Case No. 8303), "Test and Evaluation: The Director, Operational Test and Evaluation's Role in Test Resources," August 27, 1990. The C-17 was one of several programs included in the review.

Report No. GAO/IMTEC-90-34 (OSD Case No. 8323), "DoD Embedded Computers: Better Focus on This Technology Could Benefit Billion Dollar Weapons Programs," April 19, 1990. The C-17 was one of several programs included in the review.

Report No. GAO/NSIAD-89-195 (OSD Case No. 7992), "Military Airlift: C-17 Faces Schedule, Cost, and Performance Challenges," August 18, 1989.

Report No. GAO/NSIAD-88-160 (OSD Case No. 7590), "DoD Acquisition Programs: Status of Selected Systems," June 30, 1988.

Report No. GAO/NSIAD-88-3 (OSD Case No. 7488), "C-17 Wing Competition Fair, But Savings Lower Than Air Force Estimate," November 13, 1987.

Report No. GAO/NSIAD-87-97 (OSD Case No. 7197), "Air Force Analysis Supports Acquisition of C-17 Aircraft," March 20, 1987.

Air Force Audit Agency

Project No. 0036310, "Report of Audit 410-1-32, Management of C-17 Initial Provisioning," June 25, 1991.

Project No. 7036316, "Acquisition of the F117-PW-100 Engine and Its Related Logistics Support," June 20, 1988.

APPENDIX B: CHRONOLOGY OF EVENTS RELATED TO "T-1 ASSEMBLY COMPLETE"

The following chronology of events is related to the establishment and acceptance of the "T-1 Assembly Complete" event and subsequent award of the Lot III contract.

Date	Event
1988	
Nov. 18	Contract F33657-81-C-2108, Modification P00199, established "T-1 Assembly Complete" as a prerequisite to the Lot III contract award. The "T-1 Assembly Complete" event was to be accomplished when T-1 moved out of assembly and the C-17 contracting officer for the Program Office determined that any remaining assembly work could be completed without significant disruption to planned ground and flight test efforts. The approximate date for "T-1 Assembly Complete" was January 1990.
1990	
May 5	The C-17 Program Director signed a Memorandum of Agreement with Douglas Aircraft Company that addressed consideration for C-17 schedule delays. Agreement was also made to establish "T-1 Assembly Complete" as a separate contract line item.
June 12	A MOU between the Air Force and Douglas was made to define the requirements to meet "T-1 Assembly Complete" as established in Modification P00199. The MOU also established the approach by which Douglas would assist the Air Force in determining whether the assembly complete event was met. Target conditions were established for the T-1 aircraft in order to simplify potential judgments required in interpreting the following MOU condition: ". . . any remaining assembly work can be completed without significant disruption to planned ground and flight test efforts. . . ."

Date	Event
1990	
Sept. 25	Contract F33657-81-C-2108, Modification P00304, changed and definitized the date for "T-1 Assembly Complete" from January to December 1990. The Modification also established "T-1 Assembly Complete" as a billable contract line item. The billing price was $1,651 million.
Nov. 19	Letter from Douglas notifying the C-17 contracting officer of internal allegations made by a Douglas employee in October 1990 concerning the installations of fasteners on the C-17 wing panels. The letter states that the C-17 Program Director had been notified of the allegations on November 15, 1990.
Dec. 10	In a memorandum to the Defense Acquisition Board Coordinator in the Office of Production Resources, Office of the Assistant Secretary of Defense (Production and Logistics), the Director, Defense Systems and Programs Office, indicated that the C-17 Program Director had repeatedly denied members of the Director's staff access to the Douglas facility to review the "T-1 Assembly Complete" certification. Further, the memorandum stated that "conversations with the resident plant representative (DPRO) personnel indicate that not all is going well with the final assembly of T-1 and subsequent aircraft in the production flow."
Dec. 11	The DPRO developed a comparison of the T-1 aircraft condition with the MOU's "target condition," exceptions, and an observation regarding potential impact to planned Ramp and Ground Test activities. These results were provided to the C-17 Program Office. The DPRO listed the manufacturing tasks or subtasks that remained open, and identified those tasks or subtasks considered critical to "T-1 Assembly Complete."

APPENDIX B: CHRONOLOGY OF EVENTS RELATED TO "T-1 ASSEMBLY COMPLETE" (continued)

Date	Event
Dec. 14	The C-17 contracting officer responded to the Douglas November 19, 1990 letter concerning allegations about wing fasteners. The contracting officer requested that Douglas respond within 7 days [Dec 21] as to specific actions that Douglas was taking to implement immediate and appropriate corrective actions.
Dec. 21 Friday	Douglas certified "T-1 Assembly Complete" in accordance with the requirements listed in the June 1990 MOU that "defined" "T-1 Assembly Complete." Further, the certification stated that any exceptions to the MOU "Target Conditions" had been fully disclosed to the Government and were determined to satisfy the requirement that any remaining assembly work could be completed without significant impact to planned ground and flight test operations.
Dec. 22 Saturday	The C-17 contracting officer at the Program Office accepted Douglas' certification of "T-1 Assembly Complete."
Dec. 24 Monday	In a memorandum to the Office of Assistant Secretary of the Air Force (Acquisition) and the Program Executive Officer for Tactical and Airlift Programs, the C-17 Program Director stated that "On 21 December 1990, Douglas Aircraft achieved the event based contract milestone, `T-1 Assembly Complete.' Douglas has now satisfied the conditions for award of the Lot III contract for four aircraft, which will be awarded following completion of ongoing negotiations." In a letter to the DPRO, the C-17 contracting officer at the Program Office approved for payment about $1.651 billion to Douglas for completion of T-1 assembly on December 21, 1990. The contractor received a cash payment of $16.5 million and liquidated previously paid contract financing totaling $1.635 billion.

APPENDIX B: CHRONOLOGY OF EVENTS RELATED TO "T-1 ASSEMBLY COMPLETE" (continued)

Date	Event
1991	
Jan 15	Douglas notified the C-17 contracting officer that no evidence was found to indicate the integrity of the wing was compromised. A report on the results of the internal investigation was to be issued shortly.
Mar 11	Douglas issued an interim final report submitted in response to the C-17 contracting officer's December 14, 1990 letter which had required a response within seven days. The report stated that there had been no failure to comply with relevant specifications or other requirements of the C-17 contract. The investigation identified mechanical deficiencies in the "Drivmatic" machines and inadequate attention to internal manufacturing process standards. The report identified corrective actions taken and planned.
April 2	Douglas and the C-17 Program Office reached agreement on contract F33657-81-C-2108 revised delivery schedules and the Lot III contract. The restructure modification to contract 2108 would set forth revised schedules for production Lots I and II. The agreement also deliniated reductions in aircraft performance parameters.
June 28	Douglas notified the Program Office that the scheduled first flight would not occur in June.
July 25	The Under Secretary of Defense for Acquisition approved Lot III contract award and obligation of additional funds for Lot IV.
July 26	The contracting officer at the C-17 Program Office sent a letter to Douglas requesting a new T-1 delivery date and first flight since the June 30, 1991, first flight date was not achieved. The letter reserved all rights of the Government pursuant to section I, "General Provisions," reference 10, clause 7-302.9(a) "Default" (August 1969). The letter also requested that Douglas provide consideration for the delayed first flight.

Date	Event
July 30	The C-17 Lot III production contract was awarded to Douglas Aircraft Co.
Sept. 15	The DPRO accepted the T-1 aircraft for first flight at Douglas. Douglas would receive $124.7 million for first flight (less $1.4 million withheld for waivers, deviations, and shortages). $1,651 million had been received through December 1990 for "T-1 Assembly Complete." Due to the Government withhold of $1.4 million, the contractor paid the Government $145,418 and liquidated previously paid contract financing in the amount of $123.3 million.

APPENDIX C: SUMMARY OF POTENTIAL BENEFITS RESULTING FROM AUDIT

Recommendation Reference	Description of Benefit	Type of Benefit
1. and 2.	Program results. The implementation of policy requiring that appropriate OSD staff be apprised of demonstration event schedules and the participation, as appropriate, of OSD staff in the demonstration event acceptance will improve OSD oversight.	Nonmonetary.

APPENDIX D: ACTIVITIES VISITED OR CONTACTED

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Washington, DC
Assistant Secretary of Defense (Program Analysis and Evaluation), Washington, DC
Director, Tactical Warfare Programs, Office of the Director, Defense Research and Engineering, Washington, DC
Office of the Director, Defense System Procurement Strategies, Office of the Assistant Secretary of Defense (Production and Logistics), Washington, DC

Department of the Air Force

Assistant Secretary of the Air Force (Acquisition), Washington, DC
Deputy Assistant Secretary of the Air Force for Contracting, Washington, DC
Air Force General Counsel, Washington, DC
C-17 System Program Office, Aeronautical Systems Division, Wright Patterson AFB, OH

Other DoD Activities

Defense Contract Audit Agency, Douglas Aircraft Company Field Office, Long Beach, CA
Defense Plant Representative Office, Douglas Aircraft Company, Long Beach, CA

Non-DoD

Douglas Aircraft Company, Long Beach, CA

APPENDIX E: REPORT DISTRIBUTION

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition
Director, Defense Research and Engineering
Assistant Secretary of Defense (Production and Logistics)
Comptroller of the Department of Defense

Department of the Air Force

Secretary of the Air Force
Assistant Secretary of the Air Force (Acquisition)
Assistant Secretary of the Air Force (Financial Management and Comptroller)
Commander, Air Force Systems Command
Program Executive Office, Tactical and Airlift Programs
C-17 System Program Office, Aeronautical Systems Division

Defense Activities

Director, Defense Contract Audit Agency
Director, Defense Contract Management Command, Defense Logistics Agency

Non-DoD

Office of Management and Budget
U.S. General Accounting Office, NSIAD Technical Information Center

Congressional Committees:

Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Ranking Minority Member, Senate Committee on Armed Services
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
Ranking Minority Member, House Committee on Appropriations
House Committee on Armed Forces
House Committee on Government Operations
House Subcommittee on Legislation and National Security, Committee on Government Operations

PART IV - MANAGEMENT COMMENTS

Assistant Secretary of the Air Force (Acquisition)

Comments from the Assistant Secretary of the Air Force (Acquisition)

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC 20330-1000

OFFICE OF THE ASSISTANT SECRETARY

MAR 2 4 1992

MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL

SUBJECT Audit Report on Contracting Practices for the C-17 Flight Test Aircraft (Project No 1AE-5006 01) (Your Letter, January 24, 1992) - INFORMATION MEMORANDUM

The attached specific comments are in response to your request on the subject draft DoD Inspector General report

J J WELCH JR
Assistant Secretary of the Air Force
(Acquisition)

1 Atch
Comments

Final Report
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COMMENTS
ON
DoD INSPECTOR GENERAL DRAFT REPORT
AUDIT OF CONTRACTING PRACTICES FOR THE C-17 FLIGHT TEST AIRCRAFT
PROJECT NO. 1AE-5006.01
March 23, 1992

COMMENTS

EXECUTIVE SUMMARY

i **Introduction** (page i)

· The introduction skips a number of relevant facts about the program which leaves the reader with an incomplete and inaccurate introduction to the program A more accurate introduction could read·

In 1982 the Air Force awarded contract F33657-81-C-2108 to McDonnell Douglas Corporation, Douglas Aircraft Company (DAC) to develop the C-17 aircraft to provide additional airlift capability over the full range of Department of Defense cargo The Air Force initially planned to buy 210 C-17 production aircraft; however, this figure was revised to 120 aircraft after the Secretary of Defense completed a Major Aircraft Review in April 1990 When the contract was awarded in 1982, it was for modestly-paced development effort with a ceiling price of about $2.6 billion. In 1985 the program was restructured and the effort and value increased dramatically. The current 2108 contract, which includes Full Scale Engineering Development (FSED), Production Lot I (two aircraft) and Production Lot II (four aircraft), has a ceiling of about $6 65 billion One of the reasons FSED, Lot I, and Lot II were on a single contract was to provide the first four production aircraft for use during Development Test & Evaluation and Initial Operational Test & Evaluation Because of this arrangement, only one dedicated flight test aircraft (T-1) was required As of November 1991, the Government estimated it would cost DAC $7 45 billion to complete the 2108 contract effort and the Government was, and still is, making the appropriate adjustments to progress payments based on this estimate On July 25, 1991, the Under Secretary of Defense for Acquisition approved the contract award for an additional four aircraft The target and ceiling prices of the new separate
i contract were $1.0 billion and $1 2 billion, respectively First flight of T-1, which was contractually scheduled for June 1991, occurred on September 15, 1991. (Page i)

PART I - INTRODUCTION

1 **Background** (Pages 1-2)

1 · The Air Force 2108 contract was awarded in July 1982 not in August 1981 as indicated in the first sentence. (Page 1, Paragraph 1, Sentence 1)

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1	• It should be noted that one of the reasons FSED, Lot I, and Lot II were on a single contract was to provide the first four production aircraft for use during Development Test & Evaluation and Initial Operational Test & Evaluation. Because of this arrangement, only one dedicated flight test aircraft (T-1) was required. (Page 1, Paragraph 2)
1	• It should be made clear that the single ceiling applies to only the development and Lot I and Lot II production efforts (Pages 1/2, Paragraph 2, Sentence 4)
1	• It should be made clear that Lot III was awarded as a new separate contract, F33657-89-C-0001, in July 1991; therefore, its target and ceiling values are not included in the single ceiling discussed earlier for the 2108 contract. (Page 2, Paragraph 1, Sentence 5)
1	• The discussion of first flight of the flight test aircraft (T-1) is inaccurate Contractually, first flight has been changed three times from its original date of October 1985 to its final contractual date of June 1991. (Page 2, Paragraph 1, Sentence 6)
2	**Internal Controls** (Pages 3-4)
2	• Evaluation against the policies and procedures of DoDI 5000.2, dated February 23, 1991, do not seem appropriate since the date of this document is subsequent to when the milestone for "T-1 Assembly Complete" was established and accepted. (Page 3, Sentence 1)
2	• The Air Force is not aware that "*. . .the acceptance was a prerequisite for a Program decision by the Office of the USD(A) as Defense Acquisition Executive.*" The Acquisition Decision Memorandum (ADM) signed by Mr Taft on January 18, 1989 as supplemented by Mr Betti's ADM, dated November 6, 1989 gave approval for the award of Lot III contingent on briefing the Conventional Systems Committee upon attainment of each event-based contract award criteria in the baseline. The baseline referenced was never approved; however, the event-based contract award criteria it referenced was "T-1 Assembly Complete " (Pages 3/4, Sentence 3)
2-3	**Prior Audits and Other Reviews** (Pages 4-6)
3	• The Air Force and OSD did not "rush" to award Lot III as indicated. According to the special provision H-111, Prerequisite to Outyear Production Award, in the 2108 contract at that time, the Government should have awarded Lot III within 30 days of the completion of the "T-1 Assembly Complete" milestone However, negotiations on Lot III were not completed until March 1991 and after a thorough OSD review of Lot III, award was made in July 1991--seven months after "T-1 Assembly Complete" was accepted (Page 6, Paragraph 1, Sentence 1)

2

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PART II - FINDINGS AND RECOMMENDATIONS

5 **"T-1 ASSEMBLY COMPLETE"** (Page 7)

5 · Nonconcur with the second sentence, page seven, which states, "*Award of the Lot III contract required USD(A) approval, however, OSD personnel were not involved in the 'T-1 Assembly Complete' acceptance process.*" The implied requirement for OSD approval for the Lot III contract was not established until the February/March 1991 timeframe, well after T-1 was accepted. The current ADM had already granted approval for the award of Lot III contingent on briefing the Conventional Systems Committee upon attainment of "T-1 Assembly Complete "

5 · Concur with comment on the third sentence, page seven, which states, "*The Air Force based the 'T-1 Assembly Complete' billing price on a projection of expenditures of the total billing price for full delivery of T-1 aircraft.* " The billing price for the contract line item, "T-1 Assembly Complete," was established by using a profile of DAC's projected expenditures through the projected first flight date (June 1991), then running a regression analysis back to predict expenditures at the anticipated point of "T-1 Assembly Complete" (December 1990)

5 · Nonconcur with the fourth sentence, page seven, which states, "*Also, a withhold from the billing price paid was not established at acceptance of 'T-1 Assembly Complete,' for incomplete work, including work to be accomplished outside the normal manufacturing sequence* " The contract stated that acceptance of "T-1 Assembly Complete" would be in accordance with the MOU while payment was contingent on the Government's receipt of an associated Production Analysis Report (contract data item number 302K) DAC met the requirements of the MOU The report was submitted by DAC on December 21, 1990 and the Government notified the Defense Plant Representative Office (DPRO) on December 24, 1990, that it had found that the Production Analysis Report met the contract requirements Therefore, a withhold was not warranted nor justified.

5-7 **Background** (Pages 8-10)

5 · Concur with comment on the last sentence, page 8, which states, "*The MOU did not address how well the aircraft was to perform but rather identified manufacturing steps that had to be completed and functionality of components demonstrated* "

At the time the milestone, later to become known as "T-1 Assembly Complete," was put on the 2108 contract in November 1988, it's approximate completion date was January 1990 The milestone was not a specific contractual event called out in any contract line item at that time It required the Procurement Contracting Officer (the contracting officer in the Systems Program Office (SPO)) to determine ". . that any remaining assembly work can be completed without significant disruption to planned ground and flight test efforts." when T-1 moved out of assembly position 1 (assembly position 1 was inside building 54) to the outside for ramp and flight test operations. The Memorandum of Understanding (MOU), which was signed in June 1990, could not have been tied to " . . how well the aircraft was to perform . . ." since performance characteristics could not be demonstrated at the time of the milestone completion. The MOU did discuss manufacturing and functionality since these could be demonstrated at milestone completion

3

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The MOU provided a practical definition of what the status of T-1 had to be prior to completion of the milestone It provided the "target condition" the aircraft had to meet and allowed for departures from that target condition. It was not intended to have T-1 assembly 100% complete at the time of accepting this milestone. It was intended to protect the Government's rights and ensure that T-1 was not moved outside until the remaining work would not significantly disrupt planned ground and flight test efforts. The MOU was adequate at the time it was written for the purpose it was written for.

6 · Nonconcur with the last sentence, first paragraph, page 10, which states, "*By delaying the award, the Government would lessen the risk associated with the growing concurrency in the C-17 Program.*" The Government would not lessen our risk by delaying award Since DAC is less motivated to control costs until firm contract targets are established, delaying award of an effort already on long lead increases the Government's financial risk and does not lessen the concurrency risk.

7-12 **"T-1 Assembly Complete"** (Pages 11-21)

7 · Nonconcur with the last sentence in paragraph, page 11, which states, "*In addition, the establishment and acceptance of the contract line item transferred significant financial risk from the contractor to the Government.*" The Government had been paying progress payments to the contractor at a 99% rate. Therefore, when the Government liquidated the progress payments by accepting "T-1 Assembly Complete" it increased our financial risk by $16 million While $16 million is a large sum of money, it can not be considered "significant" when it is compared to the $1.6 billion the Government had already paid to the contractor for T-1 under normal progress payment procedures In addition, it added a certain amount of financial risk to the Government since payment at final T-1 acceptance (first flight) would be relatively small.

7-8 **Billing price** (Pages 11-13)

7-8 · Concur with comment on the second and third sentences below the table, page 12, which state, "*Also, no consideration appeared to have been given to a significant deficiency in Douglas' scheduling system In June 1990, the Defense Plant Representative Office (DPRO) issues a Critical Deficiency Report to Douglas, stating that Douglas did not have a reliable scheduling system to accurately forecast and facilitate the delivery of products and services*" The negotiations of establishing "T-1 Assembly Complete" were completed sometime in the June timeframe at roughly the same time the DPRO report was sent to DAC. In addition, as late as March 1991 briefings to USD(A), the Air Force believed that there was a good probability that T-1 would still meet the scheduled June first flight

4

Final Report Refrence	
8-10	**Acceptance of "T-1 Assembly Complete"** (Pages 13-17)
8	• Concur with comment on the third sentence, page 13, which states, "*Also, the certification of T-1 Assembly Complete' did not include an assessment of the percentage of completion of the T-1 aircraft relative to full acceptance and first flight of the T-1 aircraft.*" The percent complete of T-1 at "T-1 Assembly Complete" was not a designated requirement The MOU provided for departures from the target condition and the certification did include exceptions to the target condition.
8	• Concur with comment on the fourth sentence, page 13, which states, "*Based on the contractor's internal manufacturing tracking system, at 'T-1 Assembly Complete,' the T-1 aircraft assembly was only about 81-percent complete relative to first flight*" The figure of 81% complete relative to first flight from DAC's internal manufacturing tracking system is based only on DAC's total projected standard hours (both assembly and ground test/checkout). It did not take into account other expenditures such as the cost of raw material, subcontracts, and parts fabrication These additional expenditures were considered when the billing price was established
9	• Concur with comment on the third sentence, second paragraph, page 14, which states, ". . *Douglas records indicated that aircraft assembly was only about 81-percent complete*" The figure of 81% complete relative to first flight from DAC's internal manufacturing tracking system is based only on DAC's total projected standard hours (both assembly and ground test/checkout). It did not take into account other expenditures such as the cost of raw material, subcontracts, and parts fabrication These additional expenditures were considered when the billing price was established
9	• Concur with comment on the seventh and eighth sentences, page 15, which state, "*Therefore, information that could have been used to determine percent complete relative to full delivery of the T-1 aircraft when the contract line item was accepted was not available Also, the contractor did not provide the required data item, specifically the information in the Report, at the time of 'T-1 Assembly Complete.'*" The data in this report was not significant in determining whether or not T-1 met the requirements of the MOU and was not used in the certification process The value of the report was for future pricing actions since it was the first single compilation of T-1 manufacturing data
9-10	• Nonconcur with last sentence, first paragraph, page 16, which states, "*The Air Force should have withheld liquidations of a portion of the progress payment for the 'T-1 Assembly Complete' contract line item because of the work that had not been accomplished in accordance with the MOU.*" The MOU provided a "target condition" the aircraft had to meet, but allowed for departures from that target condition It was not intended to have T-1 assembly 100% complete at the time of accepting this milestone

5

AUDIT RESPONSE TO COMMENTS FROM THE ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)

In the following paragraphs, we are responding to management's comments on the factual content of the report.

EXECUTIVE SUMMARY

Introduction. We have added clarifying data to the report where appropriate.

PART I - Introduction

Background. We have added clarifying data to the report were appropriate. The effective date for the 2108 contract was August 1981; however, the contract was definitzed in July 1982.

Internal Controls. We have changed the reference to DoD Instruction 5000.2 to the September 1987 version. We also modified the report to specify the nature of the USD(A) approval for Lot III.

Prior Audits and Other Reviews. We agree that the award of Lot III was not made until 7 months after the "T-1 Assembly Complete." We believe the rush to award Lot III was incidental to the rush to accept "T-1 Assembly Complete" that would allow the contractor to liquidate over $1.6 billion in progress payments.

PART II - FINDINGS AND RECOMMENDATIONS

"T-1 Assembly Complete." We have modified the reference to USD(A) approval to clarify the nature of the approval. The $1.651 billion billing price was for "T-1 Assembly Complete" and delivery of the Production Analysis Report. The C-17 Program Director identified exceptions to three out of the six paragraphs in the MOU defining "T-1 Assembly Complete." Also, the vehicle was moved to the ramp with work that would normally have been accomplished before moving the aircraft to the ramp. The Production Analysis Report that was submitted by Douglas on December 21, 1990, the same day as the Certification for "T-1 Assembly Complete," was based on data as of November 20, 1990. The report was to be provided 30 days after "T-1 Assembly Complete." We believe it is logical to assume that the report was intended to represent data at the time of "T-1 Assembly Complete," not a month earlier. Since the billing price was established for both "T-1 Assembly Complete" and the report, withholds for deficiencies in either would have been warranted. On the contrary, it is not reasonable to assume that the payment, or liquidation of progress payments, of $1.651 billion was for a report.

Final Report Refrence	
10-12	**Office of the Secretary of Defense oversight** (Pages 17-21)
11	· Concur with comment on the last sentence, first paragraph, page 19, which states, "*The negotiation memorandum did not establish a price for this and other consideration exchanged by the Government and contractor.*" The negotiation memorandum did establish a price for all quantifiable consideration. The Program Office did not attempt to quantify nonquantifiable negotiation items.
11	· Nonconcur with the third sentence, second paragraph, page 19, which states, "*By establishing the contractual requirement to award the Lot III contract within 30 days, conditions were put into the contract that could easily not be met, given the 'normal' perturbations in the budget process.*" When the "T-1 Assembly Complete" milestone was established, it was reasonable to assume that a full contract award could have been made within 30 days of the event ("T-1 Assembly Complete"). For a number of reasons, including a zero year buy in FY91, it became necessary to restructure the program; therefore, it became impossible to award Lot III within 30 days of the milestone completion
12	· Nonconcur with the third sentence, second paragraph, page 20, which states, "*As a result, we believe the Government's liability in the event of potential latent defects .* " T-1 is a test aircraft and the purpose of a flight test aircraft is to uncover deficiencies If latent defects existed, any recovery due the Government could be after acceptance. "T-1 Assembly Complete" acceptance did not diminish the Government's rights with respect to T-1 performance
12	· Nonconcur with the fifth sentence, second paragraph, page 21, which states, "*When events, such as 'T-1 Assembly Complete,' are established, the degree and type of participation of staff from the decision authority should be established and coordinated* " The degree to which the USD(A) or his staff will be included in a program should be established during development of the acquisition strategy and be clearly communicated and documented at each milestone review
12	**Conclusion** (Page 22)
12-13	· Nonconcur with the fourth sentence, page 22, which states, "*Also, delays in notifying the contractor to provide consideration for delayed delivery of the T-1 aircraft and a revised schedule for the delivery and first flight was not sound contracting and management practice* " There were not any significant delays in attempting to retrieve consideration and establishing a revised delivery schedule. Notification was provided to the DAC on July 26, 1991 The delays have occurred in attempting to contractually implement the changes. When a contractor is over ceiling it is difficult to achieve agreement on consideration and compound the already existing loss situation. The delays in attempting to revise a schedule and retrieve consideration have little effect on DAC's current performance.

6

Final Report
Refrence

APPENDIX B: CHRONOLOGY OF EVENTS RELATED TO "T-1 ASSEMBLY COMPLETE"

21 · **May 5** - Nonconcur with second sentence which states, "*The Agreement also established 'T-1 Assembly Complete' as a separate contract line item.*" The agreement indicated the Air Force would establish "T-1 Assembly Complete" as a separate contract line item. "T-1 Assembly Complete" was not actually established as a separate contract line item until September 25, 1990 with modification P00304. (Page 29)

22 · **Dec 10** - The MOU stipulated the target condition for "T-1 Assembly Complete " More information than the DPRO evaluations were used to determine if T-1 met the MOU "target condition " The SPO had their own manufacturing personnel on site, continuously in and around T-1 until the MOU was satisfied. Assembly complete determination was based primarily on the assessment of these manufacturing personnel that T-1 sufficiently met the intent of the MOU Production of subsequent aircraft had no bearing on the "T-1 Assembly Complete" determination (Page 30)

23 · **Dec 24, Monday** (second entry) - Nonconcur with the sentence which states, "*In a letter to the DPRO, the C-17 contracting officer at the Program Office approved the payment of about $1 65 billion to Douglas for completion of T-1 assembly on December 21, 1990.*" DAC had already received 99% of the $1 65 billion via progress payments; therefore, at the time of payment for "T-1 Assembly Complete" DAC received only $16,513,767.07 (Page 31)

25 · **Sep 15** - Nonconcur with the second sentence which states, "*Douglas would receive $124 7 million for first flight* " When first flight occurred and the DPRO accepted T-1 (DD 250), the Government liquidated progress payments. At the same time the Government withheld $1,392,621 because of deviations, waivers, and shortages Since DAC had been receiving progress payments at a 99% rate, the net result was that DAC owed the Government $145,418 (Page 32)

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Background. We believe that the Air Force's effort to obtain an understanding of "T-1 Assembly Complete" was commendable. However, the subsequent contract modification that made "T-1 Assembly Complete" a contract line item gave more importance to what "T-1 Assembly Complete" meant, especially since at acceptance, the contractor was able to liquidate over $1.635 billion in progress payments, thus, reducing its liability for the debt to the Government.

Concurrency in a major acquisition is a program risk. The greater the concurrency, the greater the risk. In the report, we recognized the financial risk associated with delaying the contract award by suggesting that if award of Lot III were delayed, the long lead production funding be continued to maintain production schedules. We continue to believe that delaying the award of Lot III until after a successful first flight would have reduced the risk inherent in a highly concurrent program. With the award of Lot III, the Air Force had 10 aircraft, out of a total of 120 aircraft, under contract, even though no aircraft had flown.

"T-1 Assembly Complete." The Assistant Secretary commented that the additional financial risk the Government incurred from establishing and accepting the "T-1 Assembly Complete" milestone was the additional $16 million that the Government paid Douglas, over the $1.6 billion already paid through progress payments. We do not agree that the transfer of risk was only for the additional $16 million. Progress payments are a form of financing. When Douglas liquidated $1.635 billion in progress payments, it did away with the liability, or debt, which the progress payment financing created. The debt owed to the Government was in essence cleared. Also, 93 percent of the value of the aircraft at first flight was liquidated.

Acceptance of "T-1 Assembly Complete." We agree that the percent complete was not a designated requirement. The point of our report, was that there should have been consideration of the percent complete relative to first flight because of a significant part of the cost for first flight was being liquidated.

We never intended to imply that the June 1990 MOU defined 100 percent assembly complete. We agree that it established target conditions that would result in a less-than fully assembled aircraft. However, these conditions were not met. Given the significant billing price associated with "T-1 Assembly Complete," we continue to believe that a withhold should have been made to cover the work not accomplished in accordance with the MOU.

Office of the Secretary of Defense oversight. We have modified our report to reflect the comments of the Assistant Secretary. We continue to believe that the usual perturbations in the budget process should have been recognized in the establishment of contract line items and conditions. We did not intend to imply that latent defects could not be corrected by the contractor. We agree that the purpose of the flight test aircraft is to uncover deficiencies. However, the acceptance of a contract line item is conclusive except in specific circumstances, such as latent defects.

Conclusion. We recognize the difficulties in getting a contractor to respond in a timely manner when it is in a loss situation. However, the letter requesting Douglas to provide a revised delivery schedule and consideration for the delay was not sent until a month after Douglas notified the Government that first flight would not occur as contractually required. This notification, coincidently, occurred one day after the USD(A) approved award of the Lot III contract.

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May 5. We agree that the Agreement indicated the Air Force would establish "T-1 Assembly Complete" as a separate line item and have modified the paragraph accordingly.

Dec 24, Monday and Sep 15. The contracting officer approved the contract line item for payment. The actual cash payment was adjusted for the progress payments already made and the contractor liquidated the liability created by the progress payments. We have clarified the wording in those paragraphs.

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